

ART. V.—*Observations in Clinical Surgery, No. II., being a Report of Cases treated in the Surgical Wards of the Episcopal Hospital, during the months of January, February, and March, 1867, with Notes and Comments.* By JOHN ASHHURST, Jr., M. D., Surgeon to the Hospital, etc.

THE Medical Staff of the Episcopal Hospital consists of four physicians and four surgeons. There are, besides these, three resident physicians: one on duty in the medical wards, one in the surgical, and the third having charge of the "Dispensary," or out-patient department of the hospital.

One physician and one surgeon are on duty at a time, the year being divided for this purpose into four terms of three months each.

The surgical wards are capable of accommodating from fifty to sixty patients; a capacity scarcely equal to the demand made upon the hospital for surgical aid, but which, in the present condition of its financial affairs, cannot well be increased. The out-patient department takes off a very large number of slight injuries and chronic cases, and is besides constantly used for convalescents who require a certain amount of surgical *surveillance* without its being necessary to retain them in the wards.

During my last term of service I had under treatment and observation one hundred and fifty cases, many of them of great severity. Forty-five of these were transferred to me by my cousin and colleague, Dr. Samuel Ashhurst, and about the same number were, in turn, left by myself to the care of the senior surgeon of the hospital, Dr. Wm. S. Forbes, whose term of service succeeds my own. To render the histories of these more complete, Dr. Ingham, the senior resident physician, has continued my notes up to the end of June, at which time but six remained of those who had been under my care in the preceding March. The appended table [Table I., see p. 50] will show at a glance the nature, result, etc. of the cases under treatment during the first quarter of the present year, which are to form the subject of this paper, and the histories of some of which I propose to narrate in detail.

Two very interesting cases of stab wound were received during the night of March 18th–19th, the patients being husband and wife, and their injuries having been inflicted in an attempt to commit murder.

CASE I. *Penetrating wound of chest; recovery.*—Barney O'N——, an Irishman, thirty-six years of age, and a labourer by occupation, was stabbed while in bed on the night of March 18th, 1867, and was brought to the hospital in a state approaching collapse, at about one hour after midnight. The wound bled quite freely, but was quickly closed with a compress and adhesive strips by the resident surgeon, who also administered stimulants both internally and to the surface. When I saw the patient at about 11 A. M., of the 19th, he had reacted, and was comparatively com-

fortable, with a pulse of 92. I found the wound on the left side of the chest, over the region of the heart; there was great emphysema of the areolar tissue, extending to a considerable distance from the wound, with unnatural resonance in front, and marked dulness with tubular breathing posteriorly. The heart's impulse was absolutely imperceptible. The patient was placed upon milk diet, and opium and whiskey ordered to be given if required. The first dressing was not removed from the wound until after several days, when union was found to have taken place. Not a single bad symptom followed from this time, and the patient was discharged, cured, April 4th, 1867, having been but sixteen days in hospital. I have no doubt but that the pleural cavity was opened in this case, the emphysema and collapse of the lung being otherwise inexplicable. The lung itself, however, appears to have escaped injury.

CASE II. Wound of chest; probable wound of diaphragm; recovery.—Margaret O'N——, wife of the preceding, Irish, thirty-seven years of age, was admitted at the same time with two stab wounds, one on the left side over the region of the false ribs, and the other of the corresponding buttock, the latter, however, being merely a flesh wound. She was in a very depressed condition from shock and loss of blood when admitted, and for many hours it was doubtful whether she would rally. When I saw her at the morning visit, she breathed with great difficulty, the act of respiration being accomplished, apparently, entirely by the subsidiary muscles and without the aid of the diaphragm. There was a small circumscribed swelling around the chest wound, which appeared to be a thrombus, this means being adopted by nature to check the bleeding, which had been very profuse, and which seemed to have proceeded from a wound of the intercostal artery. The patient's injuries were dressed as in the preceding case, and with the exception of slight abdominal tenderness and meteorism, which were manifested the next day, her condition steadily improved, the thrombus having entirely disappeared in the course of a fortnight (probably by a process of absorption), and the patient leaving the hospital, well, on the twenty-first day (April 9th, 1867).

Remarks.—Not a great many years ago, it would have been deemed necessary to bleed both of these patients the moment they had reacted, and to repeat such bleeding as often as the skin became warm, or the pulse increased even but slightly in force and volume. When we consider the manner in which penetrating chest wounds were almost universally treated by our predecessors, we cannot be surprised that they found the prognosis of such injuries exceedingly grave. A man with a wound of the pleural cavity, even if the lung itself be not involved, has quite enough to contend with without the superaddition of bleeding, starving, or purging. The most rational, and, I believe, the most successful mode of treatment, is the following: In the first place the wound should be closed as quickly and as firmly as practicable; this has the advantage of placing the injury as much as possible in the condition of a subcutaneous wound, and even if the case should do badly, and empyema should ensue, it will generally be better to perform paracentesis in the usual locality than to reopen the original wound. The first dressing having been carefully applied, should not be disturbed, as a rule, for several days; not until primary union is

likely to be sufficiently firm to allow of the wound being exposed without the adhesions giving way. Of course, if a bleeding vessel is found when the wound is first seen, it should be secured; but if a clot has already formed, it need not be disturbed, for, as in the second case related above, the wound may heal over it, and the clot itself be absorbed, or, if suppuration should take place, it will not be until after the bleeding vessel has been firmly occluded.

These remarks, of course, are to be understood as applying to incised and punctured wounds, and not to those produced by firearms. I doubt if any advantage is to be obtained by attempting to procure primary union in gunshot wounds.

There is no necessity for starvation or "absolute diet," so-called, in wounds of the chest. The patient is much more apt to do well, both as to his general and his local condition, if supplied with easily digestible and nutritious food (and I know of nothing which answers the purpose better than milk) in moderate quantities and at frequent and regular intervals.

Of drugs, opium is the one most often required. Pleurisy, or pneumonia, if they occur (and, fortunately, in healthy persons, judiciously treated, they occur much less often than might *a priori* be expected) must be treated *secundum artem*; but the patient will be none the worse prepared to endure an attack of pneumonia from not having been rendered exsanguineous by previous venesection.

Thirty cases of *fracture* were treated, twenty-four being simple fractures, and the remainder compound or complicated. Three of the latter required amputation (in one case a double amputation), and one an excision of several inches of the radius; these will be referred to again under the head of operations. In one case, of compound fracture of the ulna, the wound being small, and the patient seen almost immediately after the occurrence of the accident, it was possible to obtain primary union of the wound (thus converting the injury into a simple fracture) by the use of gauze and collodion. In a similar case I should be disposed to employ Dr. Richardson's "styptic collod,"¹ which I should suppose would probably answer the purpose even better than the ordinary collodion.

A case of much interest was one of gunshot fracture of the seventh dorsal vertebra, in which careful observations of the temperature were made from time to time; this case has been fully reported to the Pathological Society of Philadelphia, by Dr. Forbes, and will be found in the record of their proceedings.

The accompanying table [Table II., p. 51] will give a compendious view of the cases of fracture, which cannot be reported at greater length (though of some interest) for want of space.

Nine cases of *burns and scalds* were under treatment; most of them

¹ See Medical News, June and July, 1877.

slight cases, and healing rapidly under the use of the "carron oil," which has always seemed to me the very best dressing that can be applied to these injuries; two cases were, however, of unusual severity not to have proved fatal; one of these subsequently submitted to amputation at the shoulder joint at the hands of Dr. Forbes, my successor in the rotation of hospital duty.

Seven cases of *chilblain* and *frost-bite* were treated during the past winter; a much smaller number than during the corresponding season of 1866, which may be remembered to have been unusually severe. When the effects of cold have gone so far as to produce sphacelation, we have treated the cases as we would have treated gangrene from other causes—removing the dead parts and healing the remaining wounds, as in any other instance. Where the inflammation from frost-bite has not been so excessive as to produce sloughing, we have found great advantage from the use of raw cotton as a dressing, the parts being daily painted with a weak solution of nitrate of silver [gr. v or vj—3j], as recommended, if I mistake not, by Mr. Skey in cases of superficial burns.

Six cases of *necrosis* and two of *caries* were under treatment. In four of the former and in both of the latter operative interference was required.

CASE III. *Necrosis of humerus; amputation at shoulder-joint; recovery.*—Robert K—, a native of this city, a school-boy, fourteen years old, entered the surgical wards of the Episcopal Hospital on March 26th, 1867. Some months previously he had been attacked by what was for some time supposed to be a form of subacute rheumatism. The pain and swelling had finally localized themselves in the upper part of the right arm, suppuration ensued, and the upper part of the humerus became necrosed. Subsequently the shoulder and elbow joints became involved in the process of disorganization, and the strumous condition of the patient was manifested by the development of periostitis in the opposite radius. The patient experienced great pain upon any motion of the right arm, and was already a good deal blanched and emaciated by the drain of constant suppuration. He was accordingly brought under the influence of ether three days after his admission, when I proceeded to remove the arm at the shoulder-joint, by the method of Larrey, which I have always practised in preference to any other. Scarcely any blood was lost during the operation, the flaps were accurately adjusted with several points of lead suture, the ligatures brought out at the lower angle of the wound, the stump well supported by compresses above and below, and the dressing completed by the application of a laudanum fomentation, covered with oiled silk, and secured in place by a broad bandage loosely enfolding the chest. Not a single bad symptom interrupted the favourable progress of the case, and the patient left the hospital on the fiftieth day (May 18, 1867) with an admirable stump, which had been perfectly healed for some time, the patient having been retained in the ward for treatment of the periostitis of the opposite side.

Dissection of the amputated arm showed that the upper part of the shaft of the humerus was dead, and its entire length greatly thickened; the head of the bone was bared, as well as the lesser sigmoid fossa, and the concave surface of the olecranon process of the ulna.

The other cases of necrosis, which required operative interference, were one in which the tibia was the bone involved, some small sequestra being removed by the aid of the gouge, trephine, and Hey's saw, one in which excision of the metatarso-phalangeal joint of the great toe was performed (by Dr. Ingham, the house surgeon), and a very interesting case of necrosis of the femur following a gunshot wound, received at the battle of Chancellorsville, May 2d, 1863; in this case I removed a portion of a leaden ball which had been imbedded in the femur, and had thus retained its position for almost four years.

Both cases of caries referred to required amputation, in one just below the tubercle of the tibia, the case doing well in spite of slight secondary hemorrhages which occurred on the seventh and eighth days, but were readily arrested by the use of pressure and cold. The other case presented some points which seem to merit a detailed report.

CASE IV. *Caries of tarsus and metatarsus; amputation of anterior portion of foot by a modification of Chopart's operation.*—S. S.—, a farmer, born in this country, fifty years old, was admitted to the Episcopal Hospital, March 13, 1867, suffering from the effects of a blow received from an axe seven months previously. There was great thickening of the anterior portion of the left foot, and diseased bone could be felt through several fistulous openings. Several small spiculæ had at different times made their way out with the discharge.

I had recently read Mr. Hancock's remarks upon amputations about the foot and ankle-joint,¹ and had been especially struck with his views as to the propriety of sometimes regarding the foot as if it were a single bone, in amputating, without regarding the separate articulations. The present seemed to me a suitable case for the adoption of this plan, and accordingly, after shaping the flaps in the usual way for a Chopart's amputation, I divided the foot with a saw, allowing the posterior surface of the scaphoid bone, which seemed healthy, to remain, and removing the anterior edge of the os calcis, which was diseased. The stump was then dressed in the usual way, and the patient recovered without a single untoward symptom, leaving the hospital, cured, on May 15, 1867, the cicatrix being perfectly sound and firm, and there having been no exfoliation from the divided tarsal bones.

By adopting the plan pursued in this case, I was enabled to retain the articulation between the scaphoid and astragalus, thus adding materially to the value of the remaining portion of the foot; the stump also being slightly longer than it could have been made by the ordinary method of Chopart.

Seven cases of joint disease were under treatment during my term of service; three of these were of the hip, two of the knee, and one each of the ankle and of the elbow. The mode of treatment which I have found most successful in affections of the joints has consisted essentially in profound rest, graduated extension, and, after the acute symptoms have subsided, moderate pressure around the part involved. A year or two ago I treated in this way a case of hip disease, entire recovery following in

¹ Published in the London Lancet, 1866, and reprinted in Braithwaite's Retrospect for January, 1867.

the short space of six weeks; a result, however, which, I regret to say, is quite as exceptional in my own experience, as in that of my professional friends.

One of the cases of hip disease under treatment this year was transferred to the medical wards, on account of symptoms of tuberculous meningitis, which were rather suddenly developed, and which subsequently terminated fatally; another remained in about the same condition after several months' treatment; while the third was subjected to the operation of excision of the head of the femur, as a means of obviating a rapidly approaching death, with the effect certainly of greatly prolonging life and of placing the patient in a more comfortable condition, though, as the patient is still under treatment, it is as yet impossible to say what may be the ultimate result. This case has been one of great interest, and will be made the subject of a special report when terminated.

The case of diseased elbow was also subjected to excision (unfortunately with a fatal result); and as this operation has not been very frequently performed in this country in civil practice, I propose to narrate the history of this patient at some length.

CASE V. Disease of elbow-joint; resection; death on thirty-third day.—B. E. F——, an American, aged fifty-six, a blacksmith, was admitted to the surgical wards of the Episcopal Hospital on Jan. 26, 1867. He had been sent into the medical wards the day before, under the impression that he was suffering from rheumatism, and the true nature of his affection was not ascertained until the visit of the attending physician, Dr. James H. Hutchinson, upon the next morning. There was great enlargement around the left elbow-joint, which evidently contained a considerable amount of fluid. There was not much pain about the part, and no grating perceptible on motion of the joint. For nearly six weeks the patient seemed to improve, with occasional relapses, but at the end of that time it became evident that the ligaments about the joint were becoming rapidly disorganized, and distinct grating on rubbing together the opposing joint surfaces showed that the articular cartilages were undergoing absorption. At the same time the patient's general condition began to deteriorate, and an observer would have supposed that instead of his age being, as he stated, fifty-six, it was at least ten years more. This was in a great degree owing to hardships which he had endured for several years before entering the hospital.

When it became manifest that the elbow-joint was hopelessly disorganized, it became a question whether the limb should be sacrificed, or whether an effort should be made for its preservation by resorting to excision. The latter mode of procedure was adopted, on account of the limitation of the diseased action to the joint itself, and because, in the unfavourable general condition of the patient, it did not appear that an amputation would be much less hazardous than a resection.

The patient was accordingly brought under the influence of ether on March 20, and the joint being fairly exposed by an H incision, an inch of the lower extremity of the humerus, and an inch and a quarter of the ulna, with the head of the radius, were removed by means of a "Butcher's saw," and a considerable amount of disorganized tissue clipped away from the floor and sides of the wound with the large cutting forceps described by

the same eminent surgeon. A good many ligatures were required to arrest the hemorrhage from small vessels which had been enlarged by inflammatory action, and, the edges of the wound having been brought together by points of the lead suture, the limb was placed in a well-fitting fracture-box, and the patient restored to his bed.

The diminution of pain after the operation was most marked, and for a week or ten days the progress of the case was as favourable as could be wished; but from this time, though with occasional improvement, the patient gradually failed, and the fatal issue, which took place on April 22, seemed rather caused by exhaustion and general diminution of vital power than by any positive complication or sequel of the operation. Though the soft parts had united to a considerable extent, there was no attempt at union between the ends of the resected bones, and there was slight ulceration of the mucous lining of the bladder, possibly following the use of the catheter, which it was necessary to employ frequently during the last period of the patient's life.

Remarks.—It is not necessary to dwell upon the steps of the operation for excision of the elbow. The points of most importance are to avoid wounding the ulnar nerve, and to divide the radius above its tubercle, thus preserving the attachment of the biceps muscle. I cannot speak too highly of the advantages to be derived from the employment of Mr. Butcher's saw and cutting forceps in this and similar operations. These instruments are comparatively little known in this country, and those which I use were made after the descriptions in Mr. Butcher's work on *Operative and Conservative Surgery*, by Mr. Gemrig, of Eighth Street, and are, so far as I know, the only ones in use in Philadelphia.

With regard to the propriety of excision of the elbow-joint as a substitute for amputation, of course every case must be judged upon its own merits. Almost any risk is permissible in an effort to save a limb, and where the extent of lesion permits a choice, unless it is manifest that an amputation will probably save life, while an excision will not, the latter operation is, I think, preferable to the former. The case is very different from one of compound fracture in the shaft of a bone, for in such injuries, unless in exceptional instances, I have not seen any advantage from a resort to resection.

Two cases of popliteal aneurism were admitted in January, 1867, and either presented points of considerable interest.

CASE VI. *Aneurism of right popliteal space, occurring several months after successful ligation of left femoral artery; deligation of right femoral; recovery.*—Henry W—, an American, thirty-three years old, was admitted to the hospital on the 2d of January, 1867. He had previously been in the wards during the preceding summer, suffering from an aneurism of the left popliteal artery, which had been cured by the application of a ligature to the femoral, the operation having been performed by Dr. Packard, the then attending surgeon, on the 7th of August. He now presented a large aneurism in the upper and anterior part of the right popliteal space, which had increased within a few days with great rapidity, and urgently demanded surgical interference. His occupation (that of a turner)

required a good deal of exertion of the lower limbs, and his own theory of the formation of the second aneurism was that, upon returning to his work after the first operation, he had as much as possible spared the affected limb, thus throwing an additional strain upon that of the opposite side.

The second aneurism had been first noticed but ten days before his admission to the hospital.

The patient having been brought under the influence of ether two days after his entrance, I made a short incision over the line of the artery in the lower angle of Scarpa's space, a small vessel, which spirted, having to be secured before the femoral artery itself was reached. The main trunk was then isolated upon an aneurismal needle and tied with a single ligature, the pulsation in the aneurism ceasing instantly upon the tightening of the knot. The incision was closed by means of a hare-lip pin and lead suture and dressed with a simple compress of sheet lint; the limb was enveloped in cotton wool, secured by a roller bandage, and placed in a slightly flexed position upon a soft pillow. Not a single bad symptom was presented from first to last, the ligature from the small vessel dropping on the sixth and that from the femoral artery on the tenth day; the patient was allowed to get up on January 31st, and left the hospital, well, on February 9th, the thirty-sixth day from the operation. He presented himself at my office several months afterwards, the limb appearing sound and healthy in every respect.

CASE VII. Incipient aneurism of right popliteal artery; ligation of femoral in middle third; death on forty-fourth day; autopsy.—M. G——, German, a labourer, was admitted to the Episcopal Hospital on January 10, 1867, suffering from what was supposed to be a sprain and contusion of the right leg. He gave his age as fifty-five, but appeared to be older; he was extremely deaf, and taciturn, so that it was impossible to get a satisfactory history of his case, even by means of an interpreter. It was ascertained, however, that he had for some time led a life of great hardship, sleeping under hedges and by haystacks, and with very insufficient food, and had finally been incapacitated by slipping and falling in a barn where he was spending the night. Two days after his admission he had an attack of pleurisy, which was quickly relieved by the use of poultices.

On January 16th, attention was first directed to the existence of an aneurism in the popliteal space of the affected (right) side. There was a not very well defined tumour, with an obscure diffusive pulsation; great pain, increased by pressure or motion; and swelling with venous congestion of the parts below. Pressure on the femoral artery instantly arrested the pulsation and diminished both the size and tension of the tumour. The next day all these signs were more marked, and there were superadded a thrill and a slight though decided *bruit*.

On the 18th, after a thorough examination by all my colleagues, it was decided in a prolonged and careful discussion of the matter, that it would be proper to tie the femoral artery without further delay, although the case was confessedly very unfavourable for the success of any operation.

The patient having been accordingly etherized, the femoral artery was tied in its middle third, the sartorius muscle being so thin, and the soft parts generally so flabby, that the pulsation of the vessel was plainly perceptible down to the point where it pierced the adductor muscle. The patient being very thin, the artery lay quite superficially, and the incision through the skin was scarcely more than an inch and a half in length.

The wound was dressed with a simple compress, and the limb wrapped in cotton as in the preceding case.

The femoral artery was of unusual size, and the ligature did not come away until the nineteenth day.

With the exception of an attack of diarrhœa of slight duration, this patient did very well until February 18th, exactly one month from the date of the operation. Furred tongue and fever now presented themselves, followed in three days by intense pain above the right patella, and, in the course of a week, by evidences of the formation of an abscess, probably, communicating with the knee-joint. Still later it became evident that the condition known as "pyæmia" was present in an aggravated degree; the patient sweated profusely, and there were constant tremor and *subsultus*; subsequently the patient's breathing became greatly oppressed, and death, preceded by a profoundly typhoid condition, ensued on March 3, 1867.

An *autopsy* was made the next day with the following results: *Rigor mortis* not marked; *head* not examined; right *lung* adherent posteriorly and greatly congested though crepitant; left *lung* posteriorly presented several so-called "metastatic" deposits, in various stages from that of mere congestion to that of puriform degeneration; it also contained in one place a small mass of calcified tubercle; *heart* healthy; *liver* large and slightly cirrhotic; *spleen* large and healthy; *kidneys* very large and flabby.

The *femoral artery* contained a firm clot from the point of ligature to the point where the *profunda* was given off. The two portions which had been divided by the ligature had been reunited by means of a thin fibrous band. The popliteal portion of the vessel was dilated, furnishing a good example of the very first stage in the formation of a fusiform aneurism.

The *femoral vein* contained a clot, unaltered above but softened below into a fluid of puriform appearance. The walls of the vein were perfectly healthy.

The *knee-joint* contained about three fluidounces of puriform serum.

Remarks.—These cases presented some interesting points for physiological study, which were made the subject of a communication to the Pathological Society of Philadelphia, at its meeting of January 23, 1867,¹ and need not, therefore, be reverted to in this place. They were also of great interest in a clinical point of view, and especially as bearing upon the question of the proper treatment of popliteal aneurism. This question is by no means yet settled; the Dublin school being particularly fond of the treatment by compression, while many able surgeons, with Mr. Syme, of Edinburgh, as their illustrious leader, still forcibly advocate the employment of the ligature in preference to any other means of treatment. I confess that I am disposed to think the latter gentlemen in the right. Deligation of the femoral artery in cases of aneurism, *if performed sufficiently early*, is a much less dangerous operation than has been generally supposed. Of course, if the surgeon delays until the venous congestion below the tumour is so great as to render imminent sloughing and gangrene, or if the operation is not resorted to until the aneurism is upon the point of bursting, the chances of a successful issue are much diminished. For such cases amputation above the knee may often be a better operation than deligation;

¹ See Amer. Journ. of Med. Sciences for July, 1867, page 147.

but for the earlier stages of aneurism, in a healthy subject, the ligature, carefully applied, offers a very favourable prognosis. Tying the femoral artery is indeed an operation of some delicacy, and should not be undertaken by one who is unaccustomed to surgical manipulations; but aneurism is almost never a disease that requires such immediate treatment as, *e. g.*, strangulated hernia, and the difficulties of the operation are therefore no argument against its being preferable to any easier method of treatment.

In the former of the preceding cases both femoral arteries were tied (at an interval of five months), with perfect success as the result of either operation. A few years ago I reported a case of unusually large popliteal aneurism, where ligation of the femoral artery was likewise perfectly successful.¹ Even in the fatal case above narrated it is evident that the unfortunate termination should not be charged upon the operative procedure, for the first bad symptom was not manifested until twelve days after the separation of the ligature, when the patient was, *quoad* the operation, entirely out of danger. The same pathological condition, with the same result, might have followed upon the amputation of a finger or the opening of an abscess, while the appearances after death showed that, as far as the operation itself was concerned, all had been accomplished that could have been expected.

Cases of aneurism which recover under the use of pressure alone are heralded as triumphs of conservatism; while the larger number in which (pressure having failed) deligation is finally resorted to are, if unsuccessful, too often quoted as evidences of the dangers of the operation, rather than of the risk of trifling with an affection which is always serious, and which occasionally runs a rapid course towards a fatal termination.

One case of gonorrhœal epididymitis was successfully treated by puncture of the *tunica albuginea*, and one of hydrocele by injection of pure tincture of iodine. Three cases of urethral stricture were under treatment, one being cured by gradual dilatation, one discharged for other than medical reasons, and one eventually dying from visceral disease, after being placed in comparative comfort by the operation of external division as practised by Prof. Syme, of Edinburgh.

Two cases of hæmorrhoids were submitted to the operation known by the name of Dr. Bushe, in each a perfectly satisfactory cure being obtained.

Two cases of cancer were submitted to operation. The first was a case of secondary cancer involving the axillary glands, the mamma having been removed in the summer of 1864, and the patient remaining free from disease for about two years. On account of the intimate connection of the deep-seated portions of the diseased structure with the axillary vessels, it was impossible in this case to remove the whole tumour. The patient was relieved from pain for a short time by the operation, but it cannot be said

¹ Transactions of the College of Physicians, Philadelphia, Feb. 1, 1865; see this Journal for July, 1865, p. 96.

that her condition was permanently improved. The case is principally interesting as having been made the subject of trial of two applications, both of which have been most highly recommended, and both of which, in this instance, most signally failed of producing the desired result. After the operation the whole wound was painted with a solution of chloride of zinc (gr. xxx—f℥j), as recommended by Mr. Campbell De Morgan.¹ So far from promoting healing by the first intention, and deodorizing the wound, the application in this case produced a linear slough over the entire surface which it had touched, and the stench was so intolerable that it was necessary to isolate the patient for the comfort of those remaining in the ward.

Afterwards (two months after the operation), when the disease had reappeared in the cicatrix, the tumour was injected two or three times, at intervals, with dilute acetic acid (one part to four), as recommended by Dr. Broadbent.² The only effect was the production of a small slough at each point of injection, without the slightest appreciable modification in the course of the disease.

The other case was that of a Welsh miner, sixty years of age, who presented an enormous mass of primary cancer in the right groin. Its growth had been quite rapid, and it had been treated, in the rural district from which he came, as a bubo and as a rupture, but had apparently never been recognized as a tumour of malignant nature. The mass was dissected away as closely as possible from the femoral vessels which it embraced, and a small portion, which, on account of its deep attachments, could not be removed, was touched with the actual cautery. The patient did perfectly well for eight days, when, after an attack of vomiting, the wound became gangrenous, and death followed in less than forty-eight hours. An *autopsy* revealed an extremely fatty condition of the heart, which would doubtless have proved a most serious complication in the case of any important operation that might have been performed.

I shall next invite the attention of the reader to a very interesting case of wound of the ulnar nerve, in which the affected limb presented somewhat the same appearance as that in a case reported by Mr. Hutchinson, and photographed in the third volume of the *London Hospital Reports*.

CASE VIII. *Incised wound of wrist, with lesion of ulnar nerve; observations of temperature in affected parts.*—Mary C—, a native of this country, thirty-two years old, entered the hospital on the 29th of January, 1867, to be treated for the results of a glass-wound received some time previously. The wound, which was on the ulnar side of the right wrist, was completely healed, but the hand remained useless on account of contraction of the flexor tendons, with loss of power and excessive hyperæsthesia of the corresponding fingers. The skin of the affected parts also presented in a marked degree that peculiar glossy appearance so characteristic of injuries of the nerves.

The treatment employed was, wrapping the hand in cotton, hypodermic

¹ See American Journal of the Medical Sciences, April, 1866, p. 532.

² Ibid., Oct. 1866, p. 547.

injections of morphia, the application of the strong tincture of the root of aconite, and afterwards the use of the galvanic current. Under this treatment the pain and hyperæsthesia were greatly alleviated, and the patient regained considerably the use of her hand. She left the hospital on May 3, her treatment having occupied ninety-four days.

The principal point of interest was the record of the comparative temperature of the right (affected) and left (healthy) hand. The observations were made by Dr. James V. Ingham, the house surgeon, and the temperatures are expressed in degrees of Fahrenheit's scale.

Record of temperature in case of wound of ulnar nerve.	First observation, March 3, 1867.	Second observation, Mar. 26th; the right hand just removed from covering of cotton.	Third observation, Mar. 27th; both hands exposed to air of ward for six hours.	Fourth observation, same day, 20 minutes later; after galvanization of right hand.	Fifth observation, Mar. 30th; right hand out of cotton for twelve hours.	Sixth observation, April 1st; both hands immersed in warm water for ten minutes.	Seventh observation, same day; both hands had been wrapped in cotton for some hours.
RIGHT (AFFECTED) SIDE—							
Between thumb and forefinger,	79°	89°·5	81°·5	81°	79°	93°	96°
“ fore and middle “	73	88	81	82	75·5	94	95
“ middle and ring “	71	90	78	77	72	93	93
“ ring and little “	70	91	74·5	77	68	92	93·5
LEFT (UNAFFECTED) SIDE—							
Between thumb and forefinger,	...	96	98	...	86	92	95·5
“ fore and middle “	...	94	97	...	78	91·5	94·5
“ middle and ring “	...	93·5	95	...	80	92·5	94
“ ring and little “	...	90	96	...	80	91·5	94

The above observations of temperature were carefully taken, and I have every reason to believe that they are accurately noted. They appear to show that the effect of the nerve lesion in this case was not so much to absolutely lower the temperature of the affected parts as to diminish their power of retaining their own temperature when exposed to cold, and generally to make them more susceptible to the influence of the temperature of the surrounding medium. The unusually low temperature noted in both hands on the 30th of March was probably due in a great degree to the observation having been made at an early hour, when the wards are generally colder than at any other period of the day.

The number of *surgical operations* performed during the three months, January—March, 1867, was twenty-five. This, of course, does not include the opening of abscesses or other such slight employments of the knife as are daily called for in a hospital.

Fourteen of the twenty-five were of sufficient importance to be designated as *major operations*, and of these five only proved fatal; moreover, in two of the latter life was undoubtedly prolonged by operative interference, and in one alone can it be said that the operation was the immediate cause of death; this was in the case of an old man from whose groin an enormous scirrhus tumour was removed, who died from gangrene of the wound, the autopsy showing his heart to be in an advanced state of fatty degeneration.

The annexed table (Table III., pp. 52-3) will show briefly the nature, history, and results of the cases of operation occurring during the time specified; and, before terminating this paper, I wish to offer a few remarks upon one or two of the cases therein contained, and which have not already been sufficiently dwelt upon, and upon the causes of death in all the cases that proved fatal among those which have formed the subject of discussion.

The case of partial excision of the radius, reported as No. 9 in the table, was that of a sailor who was brought into the house immediately before my morning visit, having been shot in a dispute a very short time previously. He had two wounds in his forearm, three in the upper arm, and one in the posterior part of the chest, just below the axilla. The radius was extensively fractured and comminuted, and it would appear that either he had been shot with more than one ball, or that the ball had been split against the radius, thus making two wounds of entrance in the upper arm; the fragments then joining each other again (for these wounds communicated subcutaneously) and passing out by the single wound of exit, and finally lodging in the subscapular fossa, where they could not be detected, and where they doubtless remain to this day. The excision consisted merely in removing all the broken pieces of the radius, and in cutting off the sharp projecting ends of the shaft, above and below, by means of a chain saw: in this way about $2\frac{1}{2}$ inches of the shaft were taken away. The only incision necessary was one in a longitudinal direction through the posterior wound, and, the principal vessels being thus avoided, no ligatures at all were required. The wound through the upper arm passed directly across the sheath of the brachial artery, which was felt pulsating immediately beneath the finger when the latter was introduced into the wound. There was, however, no secondary hemorrhage at any time, and the patient's progress towards recovery was uninterrupted by any unfavourable symptom.

The sixth case of the table, one of amputation below the knee, was the only one in which secondary hemorrhage occurred as a complication. In this case bleeding took place upon the seventh and eighth days after the operation, both times being easily checked by the application of cold, and finally prevented from recurring by the use of a roller bandage, used as a compress, and firmly secured in the popliteal space.

The total number of deaths among the 150 cases reported was six, or four *per cent.* This number may probably be increased by a fatal result in one or more of those remaining under treatment on June 30. Four of the six died during the quarter ending March 31, and two during the three months following. The causes of death were as follows: Exhaustion, with progressive emaciation, and bedsores, proved fatal in a case of gunshot wound of the spinal cord at the region of the seventh dorsal vertebra, life having been prolonged for sixty days from the date of the receipt of the injury. Visceral disease and gradual exhaustion, unconnected with the operative treatment, proved fatal in two cases, one of excision of the elbow-

joint, and the other of perineal section in a case of impermeable stricture of long standing. A case of double amputation died fifty-seven hours after the operation, from severe injuries of the head received at the time of the accident. "Pyæmia" was the cause of death in a case of deligation of the femoral artery; and traumatic gangrene in one of removal of a cancerous tumour from the groin.

In the preceding pages I have endeavoured to give a fair picture of the surgical practice of the hospital for a quarter of the year, and I think, when it is remembered that the cases received in the wards are, as a rule, of more than average severity (slight cases of injury and those of chronic surgical disease being generally treated as out-patients), it must be granted that the results of treatment compare not unfavourably with those obtained in other similar institutions. I propose to continue from time to time to submit to my professional brethren clinical reports like the present, believing that by so doing I may furnish a certain amount of material of more or less practical importance, and at the same time contribute to extend the reputation of the hospital which it is my honour to serve.

PHILADELPHIA, July 30, 1867.

TABLE I.—*Giving Number Treated, Sex, Result, Duration of Treatment, Operations employed, etc., in 150 Surgical Cases.*

Nature of cases.	Total number under treatment.	Males.	Females.	Recovered.	Improved.	Died.	Mean duration of treatment in other than fatal cases.	Duration of treatment in fatal cases.	Percentage of fatal cases.	Amputations.	Excisions.	Ligature of arteries.	Other operations.	Cause of death in fatal cases.
Incised wounds,	4	3	1	3	1	..	days	days	p'r c't					
Lacerated wounds,	3	3	..	3	..	..	34							
Punctured wounds,	3	2	1	2	..	..	49							
Simple fractures,	24	17	7	22	2	..	13							
							45							
Compound fractures, &c.	6	6	..	4	..	2	65½	{ 2½ } { 60 }	33½	3	1	..	..	{ (a) Injury of brain. (b) Exhaustion.
Bending of costal cartilage,	1	1	..	1	..	..	14							
Luxation (of humerus),	1	1	..	1	..	..	20							
Contusions and sprains,	11	8	3	10	..	..	24							
Burns and scalds,	9	5	4	6	2	..	40½							
Frost-bite,	7	7	..	4	3	..	20½	..	..	1				
Periostitis,	2	2	..	1	1	..	49			1	1	..	2	
Necrosis,	6	6	..	3	2	..	65	..	..	2				
Caries,	2	2	..	2	..	..	72	..	..	..				
Affections of joints,	7	6	1	..	1	1	61	85	14¾	..	2	..	..	Death from exhaustion and visceral disease.
Ulcers,	17	13	4	9	8	..	62							
Abscesses and boils,	4	4	..	3	1	..	36							
Paronychia,	1	1	..	1	..	..	29							
Onychia, etc.,	1	..	1	..	1	..	8	..	..	..	..	..	1	
Affections of eye,	11	9	2	7	3	..	44	..	..	..	..	..	1	
Aneurism (popliteal),	2	2	..	1	..	1	38	52	50	..	..	2	..	Death from pyæmia.
Gonorrhœa,	10	10	..	10	..	..	40							
Syphilis (including chancroid),	5	5	..	4	1	..	89							
Epididymitis,	1	1	..	1	..	..	15	..	..	..	..	..	1	
Hydrocele,	1	1	..	1	..	..	27	..	..	..	..	..	1	
Stricture of urethra,	3	3	..	1	..	1	40	197	33½	..	..	..	1	Death from visceral disease.
Fæcal fistula,	1	1	..	..	1	..	194	..	..	..	..	..	..	
Hæmorrhoids,	2	1	1	2	..	..	28½	..	..	..	..	..	2	
Cancer,	2	1	1	..	1	..	..	9	50	..	..	..	2	Death from gangrene; fatty degeneration of heart.
Wound of ulnar nerve,	1	..	1	..	1	..	94	..	..	..	..	..	1	
Cystic tumour of axilla,	1	1	..	1	..	..	32	..	..	..	..	..	..	
Tonsillitis,	1	1	..	1	..	..	10							
Totals,	150	123	27	104	28	6	Average 45.57	Average 67.58	p'r c't 4.	7	4	2	12	

TABLE II.—*Giving Statistics of Thirty Cases of Fracture, Treated from January 1st to March 31st, 1867.*

No.	Nature and cause of injury.	Sex, age, and occupation.	Method of treatment.	Result.	Duration in days.	Remarks.
1	Simple fracture of lower jaw, left side, from a blow	Male, aged 55, labourer	"Barton's bandage"	Recovered	16	Injury received 16 days before admission.
2	Simple fracture of clavicle at acromial end	Male, aged 6	Axillary pad, and 3d roller of Desault	Recovered	24	
3	Simple fracture (partial) of left clavicle, about middle; crushed between "bumpers" of railway train	Male, aged 23, labourer	Broad adhesive strips, axillary pad, and 3d roller of Desault	Improved	15	Became out patient; shortening of $\frac{1}{2}$ in. irreducible deformity.
4	Simple fracture of left humerus, just above condyles; caught in belting of machinery	Female, aged 16, operative	Internal, right-angled splint	Recovered	38	Elbow somewhat stiff.
5	Simple fracture of left humerus, about middle; injured in blasting	Male, aged 35, labourer	At first, rest on pillow with extension by bandages and cooling lotions; afterwards splints	Recovered	91	Slight flesh wound; great swelling and vesication; delayed union.
6	Simple fractures of humerus at upper third, and of tibia and fibula at lower third	Female, aged 29	Internal angular splint and fracture box	Recovered	32	
7	Compound fractures of left humerus and right radius and ulna; run over by "dummy" engine	Male, aged 37, engine-driver	Amputation of both arms above elbows	Died	24	Very severe scalp wounds; death apparently from cerebral injury.
8	Simple fracture of inner condyle of left humerus	Male, aged 14, foundry-boy	Internal angular splint	Recovered	31	
9	Compound fracture of left radius and ulna; forearm caught in "picker"	Male, aged 28, operative	Amputation of arm, just above elbow	Recovered	50	Slight attack of erysipelas; excellent stump.
10	Simple fracture of left radius and ulna	Female, aged 60	Internal angular and external straight splint, etc.	Recovered	70	Delayed union.
11	Simple fracture of left radius and ulna, just above wrist; "silver fork" deformity	Female, aged 62, bobbin-winder	"Bond's splint" and compresses	Recovered	33	
12	Simple fracture of radius at lower fifth	Female, aged 64	"Bond's splint" and compresses	Recovered	20	Injury received two weeks before admission.
13	Simple fracture of radius at middle	Male, aged 50	Two straight splints; afterwards "Bond's splint," etc.	Recovered	43	
14	Simple fracture of right radius at upper fifth	Male, aged 20, weaver	Internal right-angled splint	Recovered	28	
15	Simple fracture of radius.	Female, aged 40	Two straight splints	Recovered	38	
16	Simple fracture of left radius, at lower fifth	Male, aged 13, schoolboy	"Bond's splint" and compresses	Recovered	24	
17	Simple fracture of left radius at lower fifth	Male, aged 38, operative	"Bond's splint" and compresses	Improved	8	Made out-patient; doing well.
18	Compound (gunshot) fracture of left radius, about middle, with perforating wound of upper arm ball lodging beneath scapula.	Male, aged 28, seaman	Excision of two and a half inches of radius	Recovered	102	During convalescence suffered from jaundice and rheumatism.
19	Fracture of right radius, complicated with great laceration of hand from explosion of blast	Male, aged 30, miner	Amputation of forearm	Recovered	84	Powder burn of face, and loss of right eye.
20	Compound fracture of right ulna, with scalp wound; caught in belting of machinery	Male, aged 56, weaver	Wound closed with gauze and collodion; two straight splints	Recovered	27	Compound converted into simple fracture.
21	Simple fracture of left ulna, at lower third	Male, aged 35	Two straight splints; afterwards "Bond's splint," etc.	Recovered	134	Delayed union; ligaments of wrist much relaxed.

TABLE II.—Concluded.

No.	Nature and cause of injury.	Sex, age, and occupation.	Method of treatment.	Result.	Duration in days.	Remarks.
22	Simple fracture of olecranon; separation $\frac{1}{4}$ inch.	Male, aged 55, peddler	Compress and adhesive strips; obtuse angled splint	Recovered	26	Ligamentous union.
23	Simple fracture of patella	Male, aged 23	Straight posterior splint; limb elevated	Recovered	87	Ligamentous union; separation $\frac{1}{4}$ inch.
24	Simple fracture of tibia and fibula	Male, aged 82	Fracture box; afterwards splints of moulded pasteboard	Recovered	51	
25	Simple fracture of tibia and fibula; left side	Male, aged 6 schoolboy	Fracture box; afterwards pasteboard splints	Recovered	34	
26	Simple fracture of tibia and fibula	Male, aged 31	Fracture box; afterwards pasteboard splints	Recovered	51	
27	Simple fracture of right tibia and fibula	Male, aged 49, labourer	Fracture box; afterwards pasteboard splints	Recovered	84	
28	Simple fracture of tibia; lower third	Male, aged 8	Fracture box; afterwards pasteboard splints	Recovered	45	
29	Simple fracture of tibia; malleolus	Male, aged 28, carpenter	Fracture box; afterwards pasteboard splints	Recovered	49	
30	Compound (gunshot) fracture of seventh dorsal vertebra	Male, aged 27, policeman	Rest on water bed; simple dressing.	Died	60	Ball lodged in spinal cord.

TABLE III.—*Tabular view of Twenty-five Cases of Surgical Operations done in the Episcopal Hospital from Jan. 1st to March 31st, 1867.*

No.	Nature of operation.	Nature and duration of disease or injury.	Sex, age, occupation, &c., of patient.	Result of case.	Duration of after treatment	Remarks.
1	Amputat'n at right shoulder-joint.	Necrosis of humerus & disease of shoulder & elbow-joints; had lasted for several months.	Male, aged 14; schoolboy; American	Recovery	53 days	Operation by Larrey's method.
2	Double amputation; both arms above elbows	Compound, comminuted fractures of left humerus and right radius and ulna; immediate operation	Male, aged 37; eng.-driver; Englishman	Death	57 h'rs	Two very large contused wounds of scalp; death from cerebral injury sustained at time of accident.
3	Amputation of left arm, above elbow	Compound comminuted fracture of radius and ulna; immediate operation	Male, aged 28; operative; Irishman	Recovery	50 days	Circular operation.
4	Amputat'n of right forearm	Great laceration of hand, with fracture of radius; immediate operation	Male, aged 30; labourer; Irishman	Recovery	84 days	Oper'n by Teale's method; retained in hospital for injury of eye.
5	Amputat'n of middle finger of left hand	Frost-bite of several days' duration	Male, aged 19; boatman; Irishman	Recovery	13 days	Operation by Dr. Ingham (house surgeon).
6	Amputat'n of right leg below knee.	Caries of tibia; many years' duration	Male, aged 21; Irishman	Recovery	81 days	Antero-posterior flap operation; retained for general treatment.
7	Amputat'n of part of left foot	Caries of metatarsus & tarsus from a wound; duration, 7 months	Male, aged 50; farmer; American	Recovery	63 days	Operation by modification of Chopart's method.
8	Excision of left elbow-joint	Destructive inflammation of joint; nearly three months	Male, aged 56; blacksmith; American	Death	32 days	Death from exhaustion and ulceration of bladder.

TABLE III.—Concluded.

No.	Nature of operation.	Nature and duration of disease or injury.	Sex, age, occupation, &c., of patient.	Result of case.	Duration of after-treatment	Remarks.
9	Partial excision of left radius	Gunshot fracture; great comminution; immediate operation	Male, aged 28; seaman; American	Recovery	101 d'ys (healed in 57 days)	Resected ends, apparently united by fibrous band
10	Excision of head and neck of right femur	Hip-joint disease; nearly a year in duration	Male, aged $4\frac{1}{2}$ years; American	Remaining under treatment June 30, 1867	..	Operation by incision recommended by Heyfelder.
11	Excision of metatarsophalangeal joint of great toe, left foot	Necrosis of articulating surfaces; $\frac{3}{4}$ inch bone removed	Male, aged 50; gardener; German	Improvement	70 days	Operation by Dr. Latham (house surgeon). Fistulous opening remained.
12	Ligation of right femoral artery	Popliteal aneurism; 12 days' duration	Male, aged 33; turner; American	Recovery	38 days	Left femoral tied 5 months previously by Dr. Packard.
13	Ligation of right femoral artery in middle third	Incipient aneurism in popliteal space	Male, aged 55; labourer; German	Death	44 days	Death from "pyæmia" developed two weeks after dropping of ligature.
14	Removal of dead bone	Necrosis of tibia; over 15 months' duration	Male, aged 16; shoemaker; German	Recovery	56 days	
15	Extraction of ball	Necrosis of femur from gunshot wound; nearly four years	Male, aged 26; dis. soldier; American	Remaining under treatment June 30, 1867	..	
16	Extirpation of toe-nail	Onychia	Female, aged 12; American	Improvement	8 days	Operat'n by house surgeon.
17	Remov'l of "pterygium" from both eyes	Pterygium (double)	Male, aged 34; seaman; American	Recovery	21 days	
18	Puncture of testicle	Epididymitis (5 days)	Male, aged 33; seaman; Irishman	Recovery	15 days	Both sides successively affected.
19	Radical treatment of hydrocele (tr. iodine)	Hydrocele, six weeks	Male, aged 46; labourer; Irishman	Recovery	27 days	Previous operat'n by injection of <i>dilute</i> tr. iodine had failed.
20	"Perineal section" (Syme's operation)	Stricture (impermeable) of urethra, and perineal fistula; stricture of 8 years; acute symptoms 6 months	Male, aged 41; seaman; American	Death	57 days	Death from disease of kidneys and bladder; gluteal abscess; incisions made through cicatrix of operat'n 5 years before.
21	"Bushe's operation" for hæmorrhoids	Hæmorrhoids	Male, aged 50; labourer; Irishman	Recovery	16 days	
22	"Bushe's operation"	Hæmorrhoids	Female, aged 31; Irishwoman	Recovery	41 days	
23	Remov'l of tumour	Secondary cancer of axillary glands	Female, aged 48; American	Remaining under treatment June 30, 1867	..	Disease returned in cicatrix.
24	Remov'l of tumour	Primary cancer in right groin	Male, aged 60; miner; Welshman	Death	9 days	Death from traumatic gangrene; fatty heart.
25	Remov'l of tumour (sac partially excised, and wound painted with tr. iodine)	Cystic tumour of axilla (suppuration of sac) $2\frac{1}{2}$ mos. duration	Male, aged 13; operative; American	Recovery	32 days	